



*National Continuity Programs Directorate*

# **Integrated Public Alert and Warning System (IPAWS)**



**FEMA**



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## Integrated Alert and Warning System (IPAWS)

### What is IPAWS?

During an emergency, alert and warning officials need to provide the public with life-saving information quickly. The Integrated Public Alert and Warning System (IPAWS) is a modernization and integration of the nation's alert and warning infrastructure. IPAWS will integrate new and existing public alert and warning systems and technologies. Federal, State, territorial, tribal, and local government alert and warning systems will be able to integrate with the national alert and warning infrastructure providing a broader range of message options and communications pathways for the delivery of alert and warning information to the American people before, during, and after a disaster.



### Executive Order 13407

Executive Order 13407 established as policy the requirement for the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people. FEMA is designated within the Department of Homeland Security to implement the policy of the United States for a public alert and warning system as outlined in Executive Order 13407 and has established a program office to implement the IPAWS. FEMA and its federal partners, the Federal Communications Commission, Department of Commerce, National Oceanic and Atmospheric Administration's National Weather Service and the DHS Science and Technology Directorate are working together to transform the national alert and warning system to enable rapid dissemination of authenticated alert information over as many communications channels as possible.

**IPAWS Program Vision:** Timely Alert and Warning to American People in the preservation of life and property.

**IPAWS Program Mission:** Provide integrated services and capabilities to local, state, and federal authorities that enable them to alert and warn their respective communities via multiple communications methods.

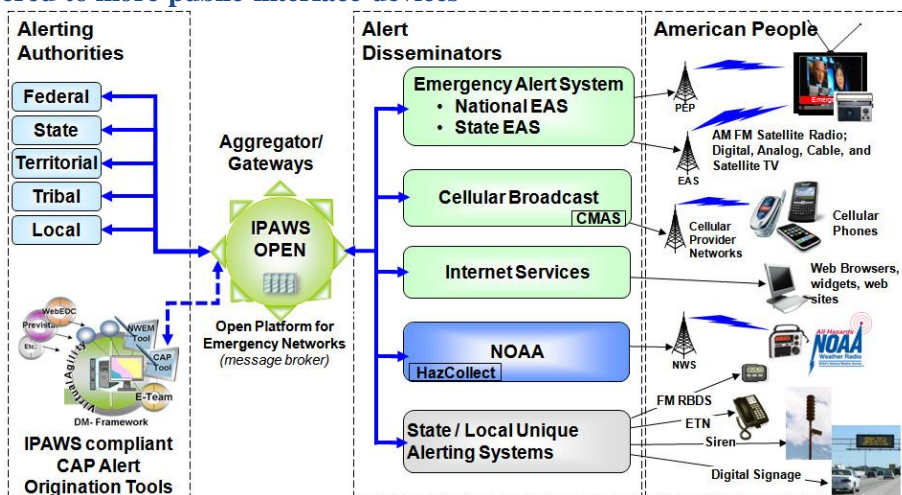
### IPAWS Program Strategic Goals:

Goal 1 – Create and maintain an integrated interoperable environment for alert and warning

Goal 2 – Make alert and warning more Effective

Goal 3 – Strengthen the Resilience of IPAWS Infrastructure

**IPAWS Architecture: Standards Based Alert Message data exchange format, alert message aggregation, shared, trusted access & distribution networks, alerts delivered to more public interface devices**





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## Geo-Targeted Alerting System

### IPAWS Geo-Targeted Alerting System

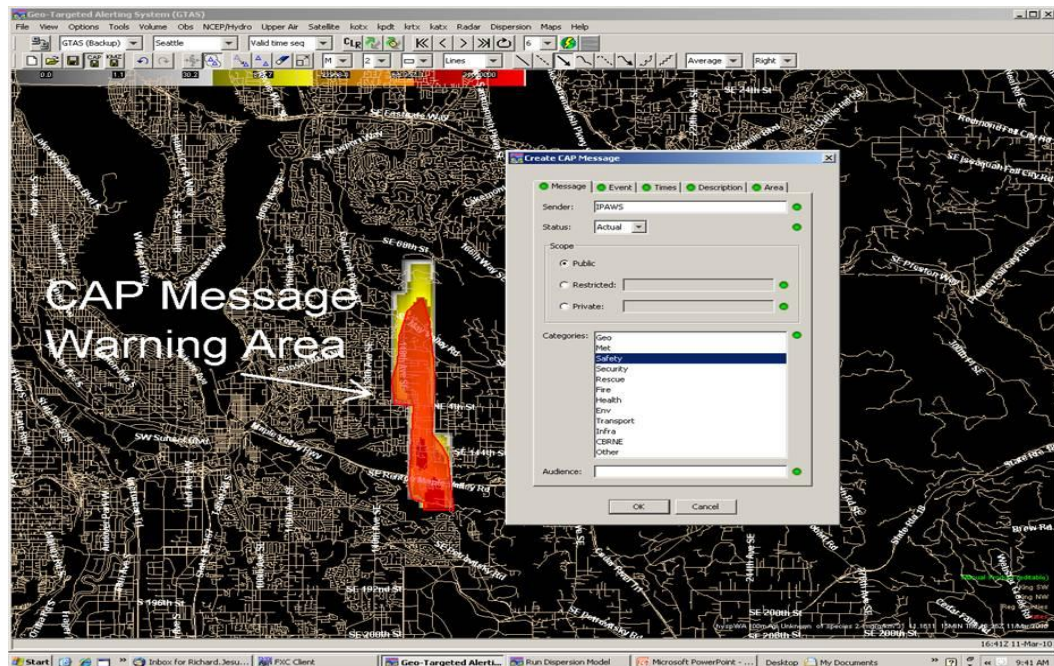
The Geo-Targeted Alerting System (GTAS) project in IPAWS is a joint development effort between the National Oceanic and Atmospheric Administration's (NOAA) Earth System Research Laboratory (ESRL) Global Systems Division (GSD) and the FEMA IPAWS program to develop tools with the input of the emergency management community. The GTAS goal is to provide a tool for collaboration between emergency managers and NOAA local weather forecast resources to quickly and accurately determine an area and population that could be impacted by a hazardous or toxic substance. GTAS will allow the emergency manager to generate and issue a geographically targeted IPAWS CAP Profile compliant alert addressed specifically to the impacted public in that area.



The GTAS tool in development provides emergency managers collaboration tools which allow them to leverage expertise and communicate with their supporting National Weather Service (NWS) Weather Forecast Office (WFO). The application generates an estimated plume area graphic on a local map which is shared between emergency managers and NWS forecasters.

The GTAS can model over 500 types of hazardous substances and integrates with other emergency manager applications. Emergency managers craft a Common Alerting Protocol (CAP) message to the affected public via one or more of the over 1,000 NWS transmitters across the nation.

GTAS prototypes have been installed at the Dallas, TX Emergency Operations Center (EOC) and Ft. Worth, Texas, Weather Forecast Office as well as the Washington State EOC, City of Seattle EOC, and Seattle Weather Forecast Office. Additional prototypes are currently being installed in New York City and Kansas City, MO.





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# Disaster Management Open Platform for Emergency Networks

## IPAWS Disaster Management Open Platform for Emergency Networks

The DM-OPEN Platform for Emergency Networks (OPEN) enhances efficient coordination and collaboration among public safety organizations by enabling the interoperable sharing of emergency alerts and incident-related data between different standards-compliant incident management systems. DM-OPEN will serve the Integrated Public Alerts and Warning System (IPAWS) as the IPAWS Alerts Aggregator. It will collect and route IPAWS emergency alerts to and from emergency systems that serve the public. This system will integrate with the various alert dissemination methods of IPAWS.

Additionally, its web services based design will allow for the addition of future alert and warning systems.



DM-OPEN will support four basic Web services through Application Programming Interfaces available to third party developers free of charge:

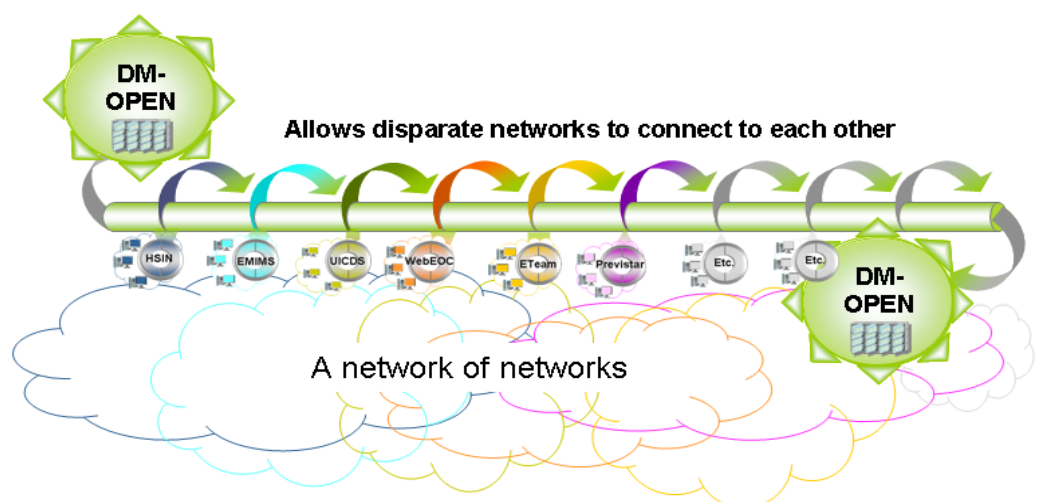
**Common Alerting Protocol (CAP)\*:** Enables the exchange of emergency alerts utilizing CAP-compliant enabled systems.

**Emergency Messaging:** A specialized form of CAP alert distributed by the National Weather Service and relayed to the Emergency Alert System.

**Distribution Element (EDXL-DE)\*:** Routes content, including Resource Messages (EDXL-RM)\*, Hospital Availability Exchange (EDXL-HAVE)\* messages, National Information Exchange Model (NIEM)-compliant content, and other commonly defined file types.

**Administration:** Supports retrieval and updating of basic system information.

*\*Emergency Data Exchange Language (EDXL) standards adopted by the Organization for the Advancement of Structured Information Standards (OASIS), <http://www.oasis-open.org>*





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## *Commercial Mobile Alert System*

### IPAWS Commercial Mobile Alert System

The Commercial Mobile Alert System (CMAS) is one of the major components of the IPAWS. The CMAS component will provide an interface to participating cellular mobile service providers for delivery of critical alert information to cellular phones in a danger zone. Specifically, the IPAWS CMAS capability will provide Federal, state, territorial, tribal and local government officials the ability to send 90 character, geographically targeted text alerts to the public, warning of imminent threats to life and property. The cellular industry, the FCC, and DHS S&T are critical partners with FEMA in developing this new alerting capability. The initial requirements of the system were developed by an advisory committee established by the FCC in accordance with the Warning, Alert and Response Network ("WARN") Act of 2006. The Commercial Mobile Service Alert Advisory Committee (CMSAAC) conducted meetings during 2008 with findings published in three FCC Report and Order documents.



A key differentiator of the IPAWS CMAS capability versus existing subscription-based text messaging alert services currently available in some localities is that the IPAWS CMAS will enable alert messages to be sent to any cell phone within range of a particular cellular communications towers. The CMAS also utilizes different communications channels and protocols in cellular systems which decrease the impact of network congestion on alert message delivery during times of emergency.

The IPAWS Program worked with DHS S&T and the Alliance of Telecommunications Industry Solutions (ATIS) and the Telecommunications Industry Association (TIA) during 2009 to establish a specification for the interface between a federal alert aggregator/gateway and commercial service provider gateways. In November 2009, the ATIS/TIA Joint CMAS Working Group approved the "Joint ATIS/TIA CMAS Federal Alert Gateway to Commercial Mobile Service Providers (CMSP) Gateway Specification" and the specification was adopted as the Government Interface Design Specification for the FEMA IPAWS federal alert aggregator/gateway in a joint FEMA and FCC press release on December 7, 2009. The press release initiated the 28-month period during which participating Commercial Mobile Service (CMS) providers must develop, test and deploy their portion of the CMAS.

The FEMA IPAWS team is currently continuing work with the ATIS/TIA JCMAS Working Group to define a CMAS Interface Test and Certification Spec and to implement the federal CMAS requirements in the IPAWS OPEN aggregator/gateway infrastructure. The IPAWS Program Office expects to have an initial IPAWS CMAS operating capability in early 2011.



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## *Primary Entry Point Stations*

### What is a PEP station?

Primary Entry Point (PEP) Stations are radio broadcast stations which are primary sources for a national EAS message. PEPs can provide national warning information prior to, during, and after emergencies. They are equipped with communications equipment and emergency generators designed to enable them to continue broadcasting information to the public before, during and after an event. FEMA, in cooperation with station licensees and operators of communication facilities, will maintain capabilities necessary for the national public alert and warning system. The PEP Expansion Project and support from FEMA to the PEP station partners will help ensure that under all conditions the President of the United States can alert and warn the public.



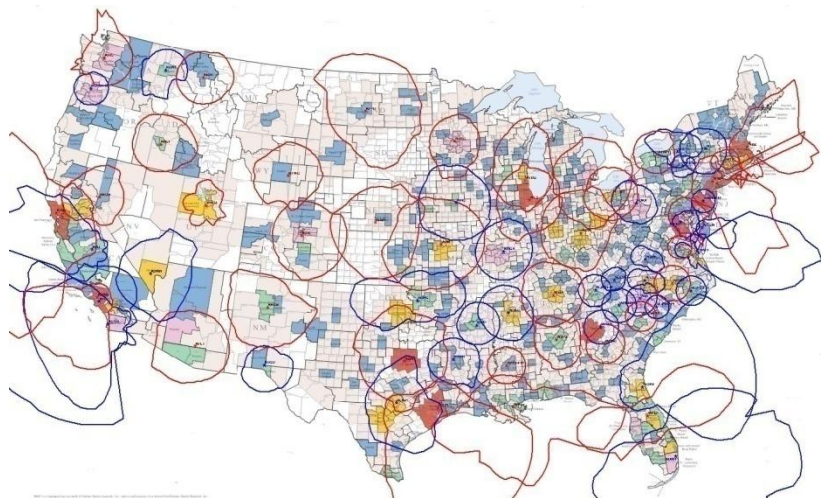
### What is FEMA doing?

In September 2009, FEMA authorized the US Army Corps of Engineers to equip additional Primary Entry Point (PEP) stations. The USACE are actively engaged in a number of activities to begin construction at FEMA broadcast partner facilities, such as initial site assessments, environmental assessments, design specifications, and coordinating activities with the state, local, tribal, territorial jurisdictions and the FEMA Regional Offices.

The PEP stations will also provide resilience for alerts and warnings to the public. The Integrated Public Alert and Warning System Program Management Office is modernizing existing PEP stations with next generation of alerts and warning equipment to include Common Alert Protocol (CAP) compliance equipment, Internet Protocol enabled equipment. Satellite Communications will also be used to increase the resilience as an alternate path for disseminating alert warning.

### What benefits will be derived from the PEP Expansion Project?

By the end 4<sup>th</sup> qtr 2011, over 70 Primary Entry Point System (PEP) stations will be operational throughout the United States, U.S. Virgin Islands, and Puerto Rico. The direct coverage of the nation's population will expand from approximately 67 percent to over 90 percent when these additional stations become operational. Construction is to start in early 2010 following procurement of the modular shelters and delivery of all required equipment to the sites.





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## *Conformity Assessment Program*

### IPAWS Conformity Assessment Program

In June 2006, the President signed the Public Alert and Warning System Executive Order to drive the creation of a more “effective, reliable, integrated, flexible, and comprehensive system that enables the American people to receive alert and warning information through as many means as possible.” In response, the U.S. Government established the Integrated Public Alert and Warning System (IPAWS) – the nation’s next-generation infrastructure of alert and warning networks expanding upon the traditional audio-only radio and television Emergency Alert System (EAS). IPAWS provides Federal, state, territorial, tribal, and local warning authorities the capabilities to alert and warn their respective communities of all hazards impacting public safety.



#### **What is the Conformity Assessment Program?**

IPAWS will interoperate with future and existing Federal, State, territorial, tribal and local systems. In order for these systems to communicate they must use the Common Alerting Protocol (CAP), an international standard. The Conformity Assessment (CA) Program will assess vendor product adherence to, and the appropriate application of the CAP Profile\* for alert message protocols. This will allow the Government to verify that systems conform to the CAP Profile, a requirement to interface properly with IPAWS.

#### **What is IPAWS Doing?**

Participating vendors will submit their products to the CA Program where they will be exhaustively tested for conformance with the CAP Profile. Products that conform will have their Supplier’s Declaration of Conformity (SDoC) posted to the Responders Knowledge Base (RKB) website along with a description of their product and contact information. Broadcasters and emergency managers can be assured that these products conform to the CAP standard.

#### **What Benefits will the Conformity Assessment Program Provide IPAWS?**

Products that are CAP compliant will be able to generate or consume messages from IPAWS. The CA Program will provide Federal, State, territorial, tribal local IPAWS users the ability to view a list of pre-screened vendors when considering Alert and Warning system purchases or upgrades.

#### **Additional Information**

Responders, broadcasters, and other EAS equipment users are encouraged to learn more about the program and to access test reports on the RKB website (<https://www.rkb.us>) before making their next purchase. Vendors are encouraged to access the following CA Program website to apply for a test: [www.nimssc.org/ipawsconform](http://www.nimssc.org/ipawsconform). Additional information about IPAWS may be accessed at: <http://www.fema.gov/emergency/ipaws>.

\* Specifically, the CAP v1.2 IPAWS USA Profile v1.0, approved through the international standards body OASIS (Organization for the Advancement of Structured Information Standards – <http://www.oasis-open.org>).

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